

# 24 HOUR CONCRETE



*with*

ATLAS  
**LUMNITE**  
CEMENT

# ATLAS LUMNITE CEMENT



*This pavement, made with Atlas LUMNITE Cement during the field demonstration of the American Road Builders' Association at Greensboro, N. C., June 3 to June 7, 1924, carried heavy traffic the day after construction. The illustrations show a fifteen-ton oil distributor and a ten-ton tractor being driven over the pavement twenty hours after being laid without marking or damaging the road in any way.*



# ATLAS LUMNITE CEMENT

## F O R E W O R D

FOR more than ten years cements similar to LUMNITE have been on the European market, principally in France, where great stimulus was given their use during the World War on account of the adaptability of their unique qualities to the speed required in military operations.

Cognizant of the apparent increasing demand among engineers and the construction industry generally for a cementing material of special qualities not possessed by other building cements now in use, and desirous of keeping pace with all forward steps in the construction field, this company was formed, after an investigation of alumina cements in France, and acquired the patents which cover the manufacture of such cements in this country.

LUMNITE cement is now being manufactured at Northampton, Pa., in ample quantities to meet any demand.

It is hoped that in putting on the market this material, new to America, a real service to the construction industry has been performed.

THE ATLAS LUMNITE CEMENT COMPANY

25 BROADWAY, NEW YORK CITY

2000 First Avenue  
BIRMINGHAM, ALABAMA

134 South La Salle Street  
CHICAGO, ILLINOIS

# ATLAS LUMNITE CEMENT



*At the busy corner of Thirteenth and High Streets, Newark, N. J., traffic was diverted only a few hours while the trench was being closed and the granite blocks being grouted with LUMNITE by the New York Telephone Company.*



# ATLAS LUMNITE CEMENT

*After 100 years of 28 day concrete — now*

## Full strength in 24 hours through LUMNITE

**F**ULL STRENGTH 28-day concrete in 24 hours is the biggest development in 100 years' use of cement concrete. This high early strength in concrete, results from the use of LUMNITE cement. Atlas LUMNITE cement is a hydraulic cement for concrete and mortar. It develops at 24 hours greater strength than that developed by other building cements in 28 days.

*This means 28 day concrete in 24 hours*

LUMNITE is not, however, "quick setting." It affords the usual time for mixing, transporting, and pouring into forms, but after setting, its high strength develops with great rapidity. It is mixed and manipulated in the same manner as Portland cement.

Besides the many benefits obtained through its high early strength, LUMNITE can be used in much colder weather than other building cements. In Europe, similar cements are generally accepted as especially resistant to the chemical attack of sea water and sulphate-bearing ground waters.

Your big job may be shortened weeks or months by completing in a few days with LUMNITE cement those essential concrete parts for which you, heretofore, have had to wait weeks for the concrete to attain its strength.

This high early strength of LUMNITE cement makes it particularly adapted to any construction work where speed is essential, and where business activities, industrial plant operation, street or highway traffic, cannot long be interrupted.

For highways or street work, it safely permits of the heaviest traffic within 24 hours after completion. Floors or pavements, building construction or alterations, engine and machine foundations, reconstruction or repair of concrete structures, retaining walls, concrete piles, foundations, railway maintenance construction, construction around water works or power houses, and all concrete work where time is important may safely be put into service 24 hours after pouring concrete made with LUMNITE.

# ATLAS LUMNITE CEMENT



*The Underpinning & Foundation Company used LUMNITE for pedestals for steel piles under the Public Ledger Building in Philadelphia. On the day after pouring LUMNITE it safely withstood the pressure of an 80-ton load.*



# ATLAS LUMNITE CEMENT

Because of its high early strength which makes *28-day concrete in 24 hours*, the use of LUMNITE cement effects big savings in concrete construction. It permits the early removal of forms and the reduction of form costs by the more frequent use of the same form material; equipment can be released sooner for the next operation.

The high early strength of LUMNITE cement is due to its chemical composition, resulting from the use of high grade aluminum ore (Bauxite) as its principal raw material. This with other raw materials is fused and then ground to considerably greater fineness than that required by the Standard Specifications for Portland Cement. The chemical composition of the resulting product, LUMNITE cement, is in round numbers as follows:—

Alumina	40%
Lime	40%
Iron Oxides	15%
Silica, Magnesia, loss on Ignition, etc.	5%

## LUMNITE CEMENT

*can be safely used for concrete in much colder  
weather than other building cements*

The rush often necessary to forestall winter can be avoided by the speed possible with LUMNITE. For work that must be done in cold weather LUMNITE will be found of great advantage because it is less subject to injury from frost for two reasons:—

*First*, the rapid hydration or early hardening of LUMNITE Cement brings the concrete, in a few hours, to a point in its curing, beyond the danger of frost attack.

*Second*, this rapid hardening, a chemical action, produces in LUMNITE Cement concrete very considerable heat. This is an additional insurance against the attack of frost. The setting of LUMNITE cement differs from that of Portland Cement, in that the setting takes place first in the interior of the mass, generating this heat, which, then works outward to the surface.

# ATLAS LUMNITE CEMENT



*Concreting between and along trolley tracks on the Boston Post Road at Darien, Conn. Eighteen hours after pouring, the pavement was opened to traffic, including heavy commercial trucks. Had ordinary concrete been used, weeks would have been lost. See page 15.*



# ATLAS LUMNITE CEMENT

## Laboratory Tests

The remarkable characteristics of LUMNITE Cement are shown below in the report of tests made by R. W. Hunt Company:

### REPORT OF TESTS ON ATLAS LUMNITE CEMENT

By Robert W. Hunt Company

#### SOUNDNESS (Boiling Test)

Six hours without any signs of cracking, warping or scaling.

#### SETTING TIME

	Initial Set		Final Set	
	Hrs.	Min.	Hrs.	Min.
Vicat Needle	4	20	5	45
Gillmore Needle	5	25	6	30

#### FINENESS

Residue on No. 200 sieve 3.4%.

#### TENSILE STRENGTH

1:3 Ottawa Sand Mortar Briquettes

(Results in pounds per square inch)

	1 day	2 days	3 days	7 days	28 days	3 mos.
Average	464	487	518	537	561	591

NOTE—The Standard Specifications for Portland Cement of The American Society for Testing Materials (C9-21) require for that material, tensile strengths of only 200 pounds per square inch at seven days and 300 pounds per square inch at twenty-eight days.

#### COMPRESSIVE STRENGTH OF MORTAR

2" x 4" cylinders—1:3 Standard Mortar

(Results in pounds per square inch)

	1 day	2 days	3 days	7 days	28 days	3 mos.
Average	4725	4905	4940	4985	5004	5289

NOTE—The Tentative Specifications and Tests for Compressive Strength of Portland Cement Mortars (C9-16T) of the American Society for Testing Materials, require compressive strengths for that material of only 1200 pounds per square inch at seven days and 2000 pounds per square inch at twenty-eight days.

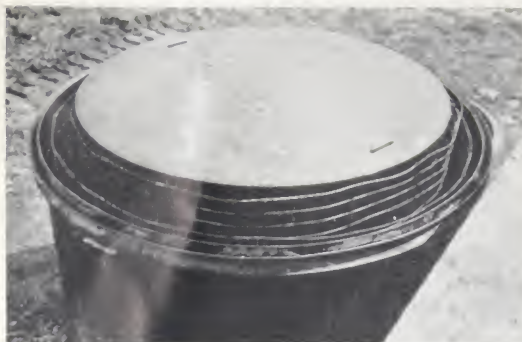
#### COMPRESSIVE STRENGTH OF CONCRETE

6" x 12" cylinders

Fineness Modulus of Sand was 2.97, and of pebbles 6.73.

All compressive test mixtures were made with a 7" slump.

# ATLAS LUMNITE CEMENT



No. 1



No. 2



No. 3

- No. 1. 54-inch pipe moulds with reinforcing in place ready for LUMNITE.  
No. 2. Filling steel mould with LUMNITE Cement concrete—54-inch pipe.  
No. 3. Concrete pipe subjected at twenty-four hours to the test ordinary concrete pipe must stand at twenty-eight days. Specifications required that no crack appear under a load of less than 19,200 pounds. This LUMNITE pipe, only one day old, showed no crack until the load reached 24,710 pounds.



# ATLAS LUMNITE CEMENT

Test pieces were kept twenty-four hours in the moulds, under a wet cloth, and with the exception of the one-day test, were stored in damp sand until immediately before testing.

All pieces were capped with plaster of paris to insure an even bearing.

(Results in pounds per square inch)

Mix	1 day	2 days	3 days	7 days	28 days
1:1½:3	3287	4436	4656	4892	5639
1:2:4	2865	3351	3542	3860	3891
1:2½:5	2202	2269	2829	2934	2939
1:3½:7	1321	1364	1511	1565	1605

## LUMNITE INSURES SPEED

*with economy and safety*

From the above it will be seen that while LUMNITE Cement develops a very high early strength, it is not quick setting.

The use of such unusually rare material and the necessity for extremely careful manufacture necessarily results in a product of higher cost than Portland Cement, but this is more than compensated for by economies of time and ultimate cost, especially where the early use of the structure is essential.

A striking example of speed and economy provided by LUMNITE to a concrete products manufacturer, is evidenced by the experience of the American Sanitary Products Company, Inc., of Stamford, Connecticut. Formerly they were obliged during three-fourths of the year, to allow their septic tanks to remain in the forms three days; also to use reinforcing—with LUMNITE Cement they remove the forms in 18 hours and the tanks thus made satisfactorily pass their most severe tests.

Mr. F. M. Brown, President of the American Sanitary Products Company, made the following statement in an article published in "Concrete" in August, 1924:—

"Comparing costs of materials, we find that using the same amount of LUMNITE Cement as we have been using of Portland, but eliminating reinforcing and Cal, we can manufacture our tanks at a saving of 84c in material, and using

# ATLAS LUMNITE CEMENT



*Obviously, the pavement in front of a firehouse is one that should not be out of service long. This one at Somerville, N. J., was hard enough for use in less than twenty-four hours through using Atlas LUMNITE Cement. It was stronger at twenty-four hours than Portland cement would have been at twenty-eight days.*



# ATLAS LUMNITE CEMENT

two-thirds quantity of LUMNITE, at a saving of \$2.42—and more important than this, it has increased the capacity of our plant three times, without a cent of outlay and at an actual saving in production costs.”

Many other types of concrete construction will show similar speed and economy when LUMNITE is used.

An example of speed and economy in concrete construction in France, when cements similar to LUMNITE were used, is shown by the following:—

In the construction of a reinforced concrete building at Chateaux Roux, Indre, France, M. Blanchett stated that on account of the early removal of forms, a saving of two-thirds of the form lumber that would have been required for doing the work with Portland Cement, was made.

## *Some examples of the many uses possible with* ATLAS LUMNITE CEMENT

As a matter of fact LUMNITE Cement can be used in any type of concrete construction in which Portland Cement can be used, but it is especially adapted to work when speed in operation is imperative or where almost immediate service is demanded of the structure.

In the following examples of work possible with LUMNITE no effort has been made to give a complete list of the uses to which it can be put, they are submitted as only partial evidence of its great value for emergency work or when speed is required. They will no doubt suggest many similar uses when it will be equally desirable.

### *For Roads and Streets*

*Intersections:* In constructing a section of the Post Road from Albany, N. Y., to Saratoga, N. Y., under the supervision of the State Highway Bureau, several important intersections of this road were left open until the end of the work. These intersections were then constructed with LUMNITE Cement concrete and opened to traffic 24 hours later. See page 16.

*Concrete Base:* At Winston-Salem, N. C., the Commissioner of Public Works stated that it was almost impossible to close up two intersections for any length of time during paving

# ATLAS LUMNITE CEMENT



*For the Hardwick and Magee Building, of Philadelphia, Atlas LUMNITE Cement was used for Raymond concrete piles. A total load of fifty tons was applied within three and two-thirds days after concreting. Ballinger Co. were architects and engineers; Barclay White & Co., builders.*



# ATLAS LUMNITE CEMENT

construction. LUMNITE Cement was used to speed the construction of these intersections and they were open to traffic 24 hours after the concrete base was laid with satisfactory results.

*Street Closures:* The New York Telephone Company found LUMNITE practical for closing a conduit trench across High Street in Newark, N. J., without seriously inconveniencing traffic. A LUMNITE Cement concrete base was placed in the morning; the granite blocks were grouted in with LUMNITE Cement in the afternoon and the closure opened to traffic that evening. See picture page 4.

*Bridge Approach:* The New Jersey State Highway Commission recently constructed a concrete bridge at Crosswicks Creek on the White Horse Turnpike near Trenton, N. J. Upon the completion of the bridge it was necessary to build the approaches and, in order not to delay traffic more than was absolutely necessary, these approaches were constructed with LUMNITE Cement and opened to traffic 24 hours later.

## *Bridges*

The Board of Wayne County Road Commissioners decided to use LUMNITE Cement for the bridge deck and pavement in a bridge near Detroit in order to open the roadway to traffic in the shortest amount of time.

The Joint Bridge Commission of Trenton, N. J., also specified LUMNITE Cement in repairing the pavement on the Morrisville Bridge near Trenton in order to minimize the inconvenience and delay to traffic.

## *For Electric Railways*

*Picture page 8.* Not only to open up roads to motor traffic, but also for convenience of city and interurban lines, such quick results as those obtained from the use of LUMNITE proved an advantage in concreting between and along car tracks of the Connecticut Co. on a road connecting with the Boston Post Road at Darien, Conn. This work was done under the supervision of the Connecticut State Highway Commission, and eighteen hours after pouring, the pavement was opened to both interurban rapid transit cars and heavy automobile and commercial traffic. Had ordinary concrete been used from two to three weeks would have been lost.

*Concrete Foundation:* The Virginia Railway & Power Co. likewise used LUMNITE Cement in the base for their track

# ATLAS LUMNITE CEMENT



*Above—On the post road between Albany and Saratoga, LUMNITE Cement concrete was used for a number of highway intersections which were opened to general traffic 24 hours later. See page 13.*

*Below—LUMNITE Cement concrete was used here by the Highway Department of the Borough of Manhattan of the City of New York as a base for asphalt pavement in closing an opening at 78th Street and Park Avenue.*



# ATLAS LUMNITE CEMENT

in Norfolk, Va. They poured the concrete between three and five o'clock one afternoon and permitted the cars to run over the track at nine o'clock the following morning.

*Paving Repairs Around Rails:* The York Railways Co. of York, Pa., and the Stroudsburg Traction Co. of Stroudsburg, Pa., purchased LUMNITE Cement for use in repairing street pavements in track area so that unnecessary interruption to traffic could be eliminated.

## *For Railway Construction and Maintenance*

Railway Engineers find LUMNITE Cement time-saving, valuable in construction or repair of station platforms, floors in round-houses and freight stations, engine or machine foundations in shops, turn-table pits, ash pits, roadways, concrete piers and abutments, repointing of old masonry, bridge seats and in many other ways. They have found that reconstruction or concrete repairs may be made in one day and put in service the next with minimum interference to traffic, shop work or terminals.

*Bridge Piers:* The New York, New Haven & Hartford Railroad Company has successfully used LUMNITE Cement in constructing bridge piers, encasing wooden piling and also in repointing masonry piers.

*Bridge Seats:* The Erie Railroad Company cast a bridge seat and installed it 25 hours after it was cast. Immediately after the seat was in place a train was allowed to pass over it and the Division Engineer states that no cracks have developed and to date it is still in perfect condition.

## *For Underpinning and Foundations*

In the underpinning of heavy buildings that are undergoing repairs, Atlas LUMNITE Cement has also been used with success, as in the case of the Frank & Seder Building, Philadelphia, Pa., where the underpinning piers were poured one day and subjected to full load on the next. This work was done by the Underpinning and Foundation Company.

Stone & Webster of Boston, Mass., have used Atlas LUMNITE Cement to advantage in preparing the sub-base and in constructing parts of the foundations for the large electric plant they are building for the Philadelphia Electric Co.

# ATLAS LUMNITE CEMENT



*On the State Highway near Whitehouse, N. J., was an intersection to be built where the contract provided that the contractor should maintain traffic. To avoid an expensive detour on the construction of the road in two sections, which would require the contractor to return 14 days after laying the first half and completing the intersection, he used LUMNITE with the result that the concrete was placed on Saturday afternoon and the road opened to traffic on Monday morning.*



# ATLAS LUMNITE CEMENT

The McLean Contracting Co. of Baltimore, Md., made a practical test of the use of LUMNITE Cement in pre-cast concrete piles. An 18-inch octagonal pile 25 feet long was driven, twenty-six hours after casting, to refusal in a compact bed of sand and gravel. A 5-ton No. 1 Vulcan hammer was used in driving this pile. No signs of failure of any kind were discovered during or upon completion of the test and, as a result, LUMNITE Cement has been purchased for the rest of the piles used in this job. Had Portland Cement been used it would have been necessary to cure the piles for 28 days before driving them. The use of LUMNITE Cement makes possible the completion of the concrete piers before cold weather sets in and the erection of the steel work according to schedule.

## *In Subways*

*Repairs Concrete Road Bed:* The Brooklyn-Manhattan Transit Co. used LUMNITE Cement to concrete in the ties of tracks where traffic could only be interrupted from twelve o'clock at night to six o'clock in the morning.

## *In Mines*

Mine operators can use LUMNITE for bulkheads, roof supports, shaft linings, tunnels, flumes, for checking underground waters, for retaining walls and for emergency work or wherever speed is vital. The Southern Gypsum Co., of North Holston, Va., used LUMNITE Cement in their gypsum mine to stop the flow of water on the sides and head of their entries. They have told us that they have found concrete made with LUMNITE to be very satisfactory.

## *Tunnel Construction*

The Spiniello Construction Company, of Newark, N. J., effected a considerable saving in the cost of the tunnel for a sewer at Mamaroneck, N. Y., by using Atlas LUMNITE Cement. The contractors had experienced difficulty due to slides in the heading. They drove a section of pipe at frequent intervals into the roof and sides of the heading. As this pipe was withdrawn, Atlas LUMNITE Cement was forced through it into the wet sand and gravel. The setting of the cement and its high early strength sufficiently solidified the sand and gravel in the roof to permit of excavation to proceed below it. Mr. J. M. Allen, Superintendent for the contractors, stated that without Atlas LUMNITE Cement it would have been

# ATLAS LUMNITE CEMENT

necessary to employ a complete compressed air plant. This would have entailed a much greater cost than that of the cement.

The Missouri Can Company constructed at their Kansas City plant a tunnel connecting two buildings under railroad tracks, using LUMNITE Cement. They concreted the roof, sides and floor of this tunnel on a Saturday afternoon and locomotives and trains passed over it early Monday morning. They have written that LUMNITE Cement has proven itself a wonderful cement under the conditions which they used it.

## *Industrial Plants*

LUMNITE is valuable in industrial plants and mills, where a delay in setting machinery to allow Portland Cement to harden would cost much more in terms of lost production.

*Machine Foundation:* The Chief Engineer of the Weirton Steel Company has written that they used LUMNITE Cement for constructing a base for their edging mill in order to secure a quick hardening foundation to permit of a week-end change of mill and without delay to production. The mill was taken out on Saturday, the old foundation removed, and the pouring of the new foundation started Saturday night and completed early Sunday morning. The foundation was hard enough to allow the erection of the mill Sunday night and it was set and grouted Monday morning ready for operation twelve hours later. He has stated in his letter that the action of the cement was very satisfactory.

A cement company official states, "in all our previous pier repairs we allowed twenty-one days for the concrete to cure. On May 20th, at 10.30 A.M., we poured a pier using LUMNITE Cement. At 4 P.M. on the next day the mill was placed in service, the operation having taken a total of 29½ hours from the time the pier was poured until the time it was placed in service." In this case LUMNITE performed a service in 29½ hours that would have required 21 days with ordinary cement.

The official of another cement company has written, "we have used LUMNITE Cement in two different places, where we had to repair a pier under a kiln and also a pier supporting a tube mill. In both cases we were anxious to lose as little time as possible. We ordinarily let a pier stand about three days before using it, but the LUMNITE Cement hardened up



# ATLAS LUMNITE CEMENT

very nicely and we started the kiln 24 hours after the pier was finished; and also started the tube mill 22 hours after the pier supporting it was finished; without any apparent injury to either of the two foundations. There are frequently cases where we desire the shut-down on a piece of machinery to be as short as possible and we figure that we can use LUMNITE to advantage whenever this is the case."

The official of another cement company says, "this cement was used neat in patching Silex lining in our tube mills. It may be of interest to you to learn that tube mills were placed in service within six hours after patching and we are very pleased with the results obtained."

Still another cement manufacturer informs us, regarding his use of LUMNITE Cement, as follows: "We installed an Allis-Chalmers Compeb Mill. This mill when fully loaded weighs about 50 tons. It is 7 feet in diameter, 26 feet long, and the base plates under the main bearings are very heavy and require about 4 inches of grout. This grouting was done with Atlas LUMNITE Cement, and apparently it has allowed us to start the mill very much sooner than if we had grouted the bearings with ordinary Portland Cement—even though we find for this purpose Portland Cement is most excellent. We are placing an order for five barrels additional of LUMNITE Cement to be used for similar mill work."

The Steel Equipment Corporation of Avenel, New Jersey, used LUMNITE Cement for patch work in various places in their factory where the floor is in constant use and where it would be a great disadvantage not to have such places available. They have found that LUMNITE Cement sets very rapidly and they are able to keep the floors in repair as well as have the continued use of them. They report that the cement has worked satisfactorily in all places where they have used it.

## *Concrete Products*

On page 10, 54-inch concrete pipe made with LUMNITE Cement is pictured under test. This pipe was made by the Newark Concrete Pipe Company of Newark, N. J., for the Cuyahoga County Sanitary Drainage System of Cleveland, Ohio. A test was made under the supervision of the County Engineer and at 24 hours the pipe successfully met the requirements of the standard specifications for concrete pipe 28 days old.

# ATLAS LUMNITE CEMENT



No. 1



No. 2



No. 3

No. 1. This Orangeburg, S. C. road was made with LUMNITE Cement and thrown open to traffic only 16 hours after placing the last concrete. No. 2. The granite block on Pearl Street, Worcester, Mass. was grouted with LUMNITE (1:2 mix. LUMNITE and sand). Concrete was placed October 23rd and the pavement was opened to traffic October 24th. No. 3. 26 hours after casting, the McLain Contracting Company of Baltimore drove an 18-inch octagonal pile 25 feet long made with LUMNITE (see page 19).



# ATLAS LUMNITE CEMENT

*Septic Tanks:* On page 11, there is a description of the use of LUMNITE Cement in the manufacture of concrete septic tanks.

*Roofing Tile:* The Crawfordsville Foundry Company, manufacturers of concrete roofing tile machinery, have written that tests made on their machines with LUMNITE Cement, showed that the tile withstood a breaking load of over 200 lbs. Tile made with standard Portland Cement usually breaks at about 150 lbs. The tests also revealed that LUMNITE Cement is not inclined to "blossom" out the oxide colors.

Columbia University in making comparative tests on concrete blocks manufactured with both LUMNITE Cement and Portland Cement at a concrete block plant at Newark, N. J., has reported that, for the same mix, LUMNITE-Cement-concrete blocks developed an average compressive strength of 1597 pounds per sq. in. per gross area at 24 hours, as against 892 pounds per sq. in. for Portland Cement at 28 days.

## *For Oil Wells*

*Cementing Casings:* The high early strength of LUMNITE will save days of valuable time in setting casings and will insure protection against collapse and corrosion. Its finer grinding and larger colloidal content give LUMNITE Cement greater plasticity than that of other cements. This facilitates its flow and insures the filling of all voids around the casing. These qualities make it particularly desirable for bottom plugs.

Tests indicate that the compressive strength of LUMNITE Cement in 12 hours is 35% greater than that of Portland Cement at 10 days. This early hardening means the successful exclusion of waters and gases; prevents loss of production or possible failure of the well; and makes it possible for drilling to be resumed in a day after the cementing of the well.

## *Drill Borings*

Drill borings have been cemented with LUMNITE by Longyear Exploration Co. at Ironwood, Mich., at Thompsons, Utah, Marquette, Mich., and other places. And also the Philadelphia & Reading Coal & Iron Co. have purchased LUMNITE Cement for cementing drill borings.

## *Derrick and Engine Foundations*

LUMNITE Cement foundations for derricks and engines can be put in service 24 hours after being laid, thus providing the maximum speed in operations.

# ATLAS LUMNITE CEMENT

## *And in Power Plants*

In power plants, LUMNITE effects big savings in new construction and emergency work, for power production must be continuous—a plant shut-down means loss both to its owners and to the community. The Philadelphia Electric Co. used LUMNITE in closing an opening in the concrete wall of a discharge tunnel below water level without interfering with the operation of that part of the plant. The engineers decided to use LUMNITE Cement in repairing the discharge tunnel of the B. M. T. Co. power plant in Brooklyn. Restrictions imposed by the management of the Company were such that this work could only be done when there was a minimum demand for power and must be limited to a few hours. An added complication was that of tide, since the work could only be done at low tide. Under these conditions the rapid hardening qualities of LUMNITE Cement became indispensable.

## *General Uses for LUMNITE*

The unique qualities of LUMNITE Cement make it particularly adapted to the construction or repair of roads or streets where traffic cannot long be interrupted; street-car track construction; conduits under city streets and closing street openings; emergency repairs caused by washouts and land slides; floors, industrial drives and machinery foundations; underpinning heavy buildings and shoring in mines; cementing oil wells and diamond drill borings; tunnels, dams, tanks, and conduits; bridges and culverts; railway maintenance and new construction; river and harbor construction; building alterations and general construction; water-works and drainage systems; concrete products; grouting granite paving blocks and any type of concrete construction where speed is vital, and where twenty-eight-day concrete in twenty-four hours would be desirable. A list of users of LUMNITE Cement is given on pages 27 to 31 inclusive.

A trial of Atlas LUMNITE Cement is necessary to realize the tremendous saving in forms that can be re-used, in equipment that can be released for the next operation, in labor that is needed only a portion of the time formerly necessary.

Quantities suitable for a small trial job or for a larger construction will be supplied from our mills promptly. We will gladly furnish assistance or information at any time on the use of Atlas LUMNITE Cement.



# ATLAS LUMNITE CEMENT

## *How to use* LUMNITE

**L**UMNITE Cement is a hydraulic cement for general building purposes. It is adapted to the same uses as is Portland Cement, and is mixed and manipulated in the same way. On account of the rapid hydration or hardening of LUMNITE Cement, too dry mixtures should be avoided. All forms should be thoroughly wet before filling with concrete to prevent loss of moisture by absorption. For several hours after setting, exposed surfaces of the concrete must be kept damp to prevent incomplete hydration indicated by "drying out" spots.

The use of heat as an accelerator in curing is not recommended. The strength of LUMNITE Cement concrete is affected if the concrete is heated during the hydration of the cement.

Neat or abnormally rich mixtures, especially in large masses, are not recommended. Considerable heat is generated in such large masses of neat or abnormally rich mixtures, due to the rapid hydration of LUMNITE Cement which may affect its strength unless conditions are such that this excessive heat can be rapidly dissipated.

Portland Cement, even in very small quantities, should not be mixed with LUMNITE Cement, as this destroys the properties of both materials. All admixtures of other cements or limes should be avoided. It is recommended that concrete mixers and tools be thoroughly cleaned of Portland Cement before using with LUMNITE Cement.

LUMNITE Cement or concrete will bond well to Portland Cement concrete which has set. The surfaces of the old concrete should be roughened, brushed clean and thoroughly wet. Apply a rich creamy grout of LUMNITE Cement to the surface just before pouring the LUMNITE Cement concrete.

LUMNITE Cement, unlike other cements, hardens first in the interior of the mass and the hardening proceeds from the interior toward the surface. The surface may still be slightly soft after the concrete structure has attained considerable strength.

Atlas LUMNITE Cement is shipped in paper-lined cloth bags, or paper lined export barrels. It should be given the same careful protection against the absorption of moisture and pressure caking as is recommended for Portland Cement.

# ATLAS LUMNITE CEMENT



*LUMNITE was used for this road bed in Hudson, N. Y. The upper photograph shows concrete being placed on the morning of October 25, 1924, while the lower photograph shows the 32-ton trolley car in operation on the new road the morning of October 26th—only 26 hours after completion with LUMNITE.*



# ATLAS LUMNITE CEMENT

## *Some uses that have been made of* **LUMNITE CEMENT**

LUMNITE is recommended for these uses:

### *Road and Street Pavement—Construction and Maintenance*

- New York State Highway Commission
  - Construction of concrete roads at intersections.
  - Repair of concrete roads.
- New Jersey State Highway Department
  - Construction of concrete roads at intersections.
- Connecticut State Highway Department
  - Concrete road construction and repairs.
  - Concrete pavement between and along trolley tracks.
- Pennsylvania State Highway Department
  - Construction and repair of concrete pavements.
- Tennessee State Highway Commission
  - Concrete pavement in a railroad underpass.
- South Carolina State Highway Department
  - Concrete pavement repairs.
- Maryland State Highway Commission
  - Concrete pavement repairs.
- Rhode Island Board of Public Roads
  - Pavement construction.
- Virginia State Highway Commission
  - Maintenance and repairs.
- George State Highway Commission
  - Highway maintenance.
- Wayne County (Michigan) Board of Road Commissioners
  - Concrete pavement repairs.
- Bergen County, New Jersey
  - Repairing bridge over Hackensack River.
- Allegheny County (Pennsylvania) Bureau of Highways
  - Concrete pavement construction and repair.
- City of Springfield, Mass.
  - Grouting granite block pavement.
- City of Cohoes, N. Y.
  - Paving city streets.
- Asheville, N. C.
  - Street repairs.

# ATLAS LUMNITE CEMENT

- Town of West Orange, New Jersey  
Repair of concrete pavements.  
Closing street openings.
- Edward Balf Co., Hartford, Conn.  
Closing street opening, Hartford.
- Borough of Somerville, N. J.  
Entrance to fire engine house. Picture on page 12.  
Curb and gutter construction for street alterations.
- Grand Rapids, Michigan  
Emergency work by Department of Public Service.
- Memphis, Tenn.  
Street repairs at 4th and Court Streets.
- Winston-Salem, N. C.  
Concrete base for pavement by Atlantic Bitulithic Co.
- Jacksonville, Florida  
Emergency repairs and street closures.
- New York Telephone Company  
Closing conduit trenches and grouting granite block pavement.
- Southern New England Telephone Co.  
Closing conduit trenches and grouting brick pavement.
- Fred T. Ley Co., Springfield, Mass.  
Closing conduit trenches and grouting brick pavement.

## *Railroads*

- New York, New Haven and Hartford R. R.  
Concrete piers.  
Pointing masonry piers.
- Erie Railroad  
Concrete bridge seats.
- Boston and Albany R. R.  
Repairs to bridge piers.
- Temiskaming & Northern Ontario R. R.  
Turntable construction.

## *Electric Railways*

- Brooklyn-Manhattan Transit Co.  
Concreting track ties in New York subway.
- Connecticut Company (State trolleys)  
Concreting track structure and pavement.
- Stroudsburg Traction Co., Stroudsburg, Pa.  
Repairs to street paving base in track area.



# ATLAS LUMNITE CEMENT

Boston Elevated Railway Co.

Grouting granite block pavement between and along tracks.

York Railways Co., York, Pa.

Pavement between and along tracks.

Virginia Railway & Power Co.

Concrete base for track.

Georgia Railway & Power Co.

Maintenance work.

Albany Southern Railways Co.

Pavement between and along tracks.

## *Bridges*

Joint Bridge Commission

Paving Delaware River Bridge at Trenton, N. J.

Wayne County (Mich.) Board of Road Commissioners

Concrete deck of bridge at Bellville, Mich.

New Jersey State Highway Department

Concrete bridge approaches.

New York, New Haven & Hartford R. R.

Concrete bridge piers.

Erie Railroad

Concrete bridge seats.

## *Tunnel Construction*

American Locomotive Co.

Tunnel under railway at Schenectady, N. Y.

Spiniello Construction Co., Newark, N. J.

Construction of sewer tunnel at Mamaroneck, N. Y.

Missouri Can Co., Kansas City

Lining tunnel under railway.

## *Mines*

Southern Gypsum Co.

Lining entries.

## *Underpinning and Foundations*

Underpinning and Foundation Co., New York

Concrete underpinning.

Concrete piling.

Barclay White & Co., Philadelphia

Concrete piling.

# ATLAS LUMNITE CEMENT

## Stone and Webster

Used in construction of the foundations for an electric power house at Philadelphia.

## McLean Contracting Company, Baltimore, Md.

Precast concrete piles for bridge at Wilkes-Barre, Pa.

## *Industrial Plants*

### Weirton Steel Co., Weirton, W. Va.

Constructing base for an edging mill.

### Atlas Portland Cement Company

Repairs to concrete piers for tube mill.

### Armstrong Cork Co.

Industrial roadway about plant.

### Krebs Pigment and Chemical Co.

Industrial roadway about plant.

### J. H. Buhrmaster, Scotia, N. Y.

Concrete base and approaches for platform scales.

### Certain-teed Products Corporation, Trenton, N. J.

Plant maintenance work.

### Standard Oil Company

Plant maintenance work at Bayway, N. J.

### General Electric Co.

Plant maintenance at Pittsfield, Mass.

### Sunbury Converting Works, Sunbury, Pa.

General concrete repairs about plant.

## *Power Plant Construction and Maintenance*

### New York Edison Co.

Alterations to discharge tunnel from condensers.

### Philadelphia Electric Co.

Repairs to concrete discharge tunnel from condensers.

### Stone & Webster

Used in construction of new power plant at Philadelphia.

## *Cementing Oil Well Casings*

### Standard Oil Company of New Jersey

### Humble Oil and Refining Co.

### Carter Oil Co.

### Gypsy Oil Co.

### Halliburton Oil Well Cementing Co., Duncan, Okla.

### H. F. Wilcox Oil and Gas Co., Tulsa, Okla.



# ATLAS LUMNITE CEMENT

## *Cementing Drill Borings*

E. J. Longyear Exploration Co., at  
Ironwood, Michigan  
Marquette, Michigan  
Thompsons, Utah  
Philadelphia and Reading Coal and Iron Co.

## *Concrete Products*

Newark Concrete Pipe Co., Newark, N. J.  
Construction of reinforced concrete pipe at Cleveland,  
Ohio, Ashtabula, Ohio and Buffalo, N. Y.  
American Sanitary Products Co., Stamford, Conn.  
Construction of concrete septic tanks.  
Smyrna Concrete Products Co., Smyrna, Del.  
Reinforced concrete posts for mail boxes.

LUMNITE Cement is also recommended for the construction of culverts; sewers, dams, tanks; lining shafts and tunnels; marine work; building construction; emergency work in connection with washouts and slides.



*At the International Oil Show and Exposition held in Tulsa, Okla. October 2nd to 11th, 1924, these Clark Compressors were grouted in with LUMNITE, the load being placed on the concrete only 14 hours after pouring.*

# 24 HOUR CONCRETE



*with*

ATLAS  
**LUMNITE**  
CEMENT